REMARKS

Claims 4-7 are pending and under consideration. Reconsideration is respectfully requested.

Allowable Subject Matter

In item 2 of the Office Action, the Examiner objects to claim 5 as being dependent upon a rejected base claim, but indicates it would be allowable if rewritten in independent form. Applicants appreciate the indication of allowable subject matter.

Claim 5 is not rewritten herein since Applicants respectfully submit that patentability resides in parent claim 4 from which claim 5 depends.

Traverse of rejection

The Examiner rejects claims 4 and 6-7 under 35 U.S.C. §103(a) as being unpatentable over Yu et. al "Trellis Precoding for the Broadcast Channel" published in 2001, pages 1344-1348 ("Yu") in view of Yao et. al., "Lattice-Reduction-Aided Detectors for MIMO Communication Systems" published in 2002, pages 424-428 ("Yao"). The rejection is traversed.

*   *   *

Independent claim 4 recites a method for ". . . user signals to be transmitted concurrently . . . between <u>a central transmitting station</u> and K <u>decentralized, non-interconnected receiving stations</u> . . . " (Emphasis added).

That is, claim 4 recites a "central transmitting station" that is a common transmitter, e.g., in which user signals can be processed, but having "decentralized, non-interconnected" receivers.

By contrast with claim 4, Yao merely teaches a method in which:

[P]roofs and simulations in this paper are limited to the 2 X 2 case.

(See, for example, page 428, "VI. Summary And Future Work," last paragraph).

That is, Yao merely teaches a:

[C]ase in which the channel matrix H is effectively known at the receiver but not at the transmitter.

(See, for example, page 424, "I. Introduction," third paragraph).

That is, Yao teaches a <u>multi-antenna</u> system, e.g., two transmitting and two receiving antennas system in which all user receive signals are known on the receive side.

Applicants submit that nothing in teaching of Yu overcomes this deficiency of Yao and

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that one of ordinary skill in the art would not look to modify Yao with Yu in a manner as suggested by the Examiner.

As discussed by Applicants' representative on the telephone with the Examiner, while Yu does disclose a downlink direction, Yu merely teaches applications of <u>multiple antennas</u>. In particular, Yu discloses:

> The broadcast situation, on the other hand, is much less understood. This is mainly because the capacity region for the broadcast channel is still not known, except in the special degraded case. <u>This paper focuses on the broadcast problem. We will present two results</u> for the non-degraded Gaussian vector broadcast channel <u>with multiple antennas at the transmitter.</u>

(Emphasis added, see, for example, page 1344, I. Introduction, left hand column.)

Thus, Applicants submit that one of ordinary skill would <u>not</u> modify Yao's teaching of a <u>multi-antenna</u> system with Yu's teaching of "<u>multiple</u> antennas at the transmitter," to teach all of the features recited by claim 4, for example.

Thus, Applicants submit that the rejection should be withdrawn.

<div align="center">*   *   *</div>

In addition, claim 4 recites a nonlinear "precoding method based on modulo arithmetic for the <u>transmit-side preequalization</u> . . . . linear preequalization of the selected representatives v_k to form transmit signals x_k to be transmitted . . . <u>including interference symbols in the digital broadcast channel</u> superimposed . . . ; and <u>eliminating the interference</u> symbols <u>by the K receive-side modulo decision devices.</u>" (Emphasis added).

That is, a partial precoding (pre-equalizing) at transmit-side and eliminating residual (remaining) interference signals at the "receive side."

The Action concedes that Yu does <u>not</u> teach "eliminating the interference symbols by the K receive-side modulo decision devices," as recited by claim 4, for example. The Examiner asserts, however, that Yao teaches such eliminating and it would have been obvious to modify Yu with Yao. (See, Office action at page 6, line 15- page 7, line 3).

Applicant submits, however, that Yu teaches:

> The trellis precoder generalizes the Tomlison-Harashima precoder, and it is able to <u>presubtract multiuser interference completely</u>.

(See, page 1348, IV. Conclusion).

Thus, Yu <u>teaches away</u> from eliminating at a receive side and with a combination with Yao, as the Examiner asserts.

Thus, a *prima facie* case of obviousness is not supported and the rejection should be withdrawn.

*   *   *

Dependent claims 6-7 inherit the patentable recitations of base claim 4, and therefore, patentably distinguish over the cited art for at least the reason discussed above. Thus, the rejection to claims 6-7 should be withdrawn.

Conclusion

Thus, the rejection should be withdrawn and claims 4 and 6-7 allowed.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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